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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,861	11/28/2001	Osamu Tanitsu	111221	9827

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EXAMINER

MATHEWS, ALAN A

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,861

Applicant(s)

TANITSU ET AL.

Examiner

Alan A. Mathews

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2003 and 04 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 1-6, 10 and 44-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7-9, 11-16, 18-25, 27-37 and 39-43 is/are rejected.
- 7) ☒ Claim(s) 17, 26 and 38 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11/01 and 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species II in Applicant's Response filed September 10, 2003, is acknowledged. The traversal is on the ground(s) that the search would not be a burden. This is not found persuasive because the Examiner would have to search features not recited in the elected claims. It is further noted that in the corresponding PTC Application, a lack of unity was held.

The requirement is still deemed proper and is therefore made FINAL.

Claims 2-6, 10, and 44-47 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Applicant's Response filed September 10, 2003.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 7-9, 11-16, 18-25, 27, 29-37, and 39-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiraishi et al. (U. S. Patent No. 5,719,704). Shiraishi et al. discloses in figures 15 and 16 and column 13, lines 23-39, that elements 40a and 40b are integrators. As shown in figures 15 and 16, elements 50, 51, 20, and 21 would change the aspect ratio when they are moved (see also column 23, lines 31-44). By adjusting the interval by relatively moving the first prism 50 and the second prism 51 in the direction of the optical axis, the X-direction interval between the two light beams can be determined. This would change the aspect ratio. With respect to claim 7, figure 17 discloses a mask 9, a projection optical system 11, and a work piece 13. With respect to claim 9, column 26, lines 10-23, disclose placing a **zoom** lens system between 4 and prism 50. The zoom lens would be the light converting means. With respect to claim 11, prisms 50 and 51 would be the first aspect ratio-changing element and prisms 20 and 21 would be the second aspect ratio changing element. With respect to claim 14, the varying mechanism would be the first prism 50 and 51, which are displaced by activating members 62a, 62b, 27a, 27b, and 28a, 28b. With respect to claim 15, the second displacement unit would be prism 20 and 21 shown in figures 15 and 16. The magnification-varying optical system would be the zoom recited in column 26, lines 10-23. With respect to claim 16, figure 17 and column 26, lines 45-52, discloses a beam expander 81. With respect to claim 19, Shiraishi et al. '704 discloses in figure 29 integrator rods 203a and 203b. With respect to claim 22, element 92 is conical.

4. Claims 1, 7, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Wangler et al. (U. S. Patent No. 6,285,443). Wangler et al. '443 discloses in figure 1 a glass rod 5, which is an optical integrator. As further evidence that glass rod 5 is an optical integrator, it is noted that the parent to Wangler et al. '443, U. S. Patent No. 5,675,401, specifically discloses in column 2, lines 52 and 53, and claim 9, line 2, that the glass rod functions as a light integrator. U. S. Patent No. 5,675,401 is merely cited to show evidence that the glass rod in 5 in Wangler et al. '443 is an optical integrator, and is not intended to form part of a 103 rejection. Wangler et al. '443 discloses in column 4, lines 51-55, that raster element 8 introduces a divergence of individual angular degrees to provide a rectangular distribution having an aspect ratio, which corresponds to the aspect ratio of the entry face 5e of the glass rod 5, that is, for a wafer stepper of, for example, 1:1.3. This element 8 in Wangler et al. '443 is an aspect ratio changing element arranged between the light source 1 and the optical integrator 5. With respect to claim 7, element 7 is the mask arranged at the illumination objective plane. Column 2, lines 21-24, and column 3, lines 42-44, disclose a projection objective and a wafer holder and that the illumination arrangement is suitable for a wafer stepper. With respect to claim 9, elements 61, 62, 63, 64, and 65 comprise a guiding optical system, which is arranged between integrator 5 and the illumination objective plane 7.

5. Claims 14, 20, 29, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Wangler et al. (U. S. Patent No. 5,675,401). Wangler et al. '401 discloses in figure 1 an illumination system 1 and 12 and a varying mechanisms 22 and 23 and 24 for varying one of the

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size and shape of an illumination light beam. Element 23 can be displaced by positioning drive 231a and element 24 can be displaced by positioning drive 241a.

6. Claims 14 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Schultz et al. (U. S. Patent No. 6,295,122). Schultz et al. discloses axicon pair 72, which would be the varying mechanism that includes a displacement unit. Element 71 is an adjustable zoom.

7. Claims 14, 22, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Wangler (U. S. Patent No. 5,646,715). Wangler '715 discloses in figure 1 an axicon pair 22 and 23, which is the varying mechanism. Claim 8 of Wangler '715 discloses that the axicon pair is conical.

8. Claims 14, 22, 23, 25, 27, 28, 29 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Mulkens et al. (U. S. Patent No. 6,452,662). Mulkens et al. '662 discloses in figure 8 axicon pair 22a and 22b, which would be the varying mechanism. Element 12 is an axicon/zoom module. As stated in column 3, lines 57-63, the spot size can be varied between states A and B by changing the zoom position. Similarly, the annularity can be changed between states A and C by varying the axicon opening (separation between the axicons). With respect to claim 27, element 26 is an integrator.

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Allowable Subject Matter

9. Claims 17, 26, and 38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

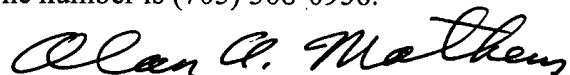
Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents on Applicant's PTO 1449's are cited for the same reasons Applicant cited them in his INFORMATION DISCLOSURE STATEMENTS. The patent to Dewa et al. is cited to show conical members 35 and 36.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan A. Mathews whose telephone number is (703) 308-1706. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Alan A. Mathews
Primary Examiner
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